Water Rules!

Click any of the terms below to read its explanation.

What is the Clean Water Act?

Cuyahoga River fire

In the late 1960's and early 70's, citizens and government officials in the United States realized there was a crisis with our streams and lakes. The water was so polluted that the Cuyahoga River in Ohio was one of several that actually caught on fire – more than once! In order to address the problems, Congress made laws in 1972 to protect surface water that have come to be known as the **Clean Water Act (CWA)**.

The US Environmental Protection Agency (EPA) is responsible for overseeing the requirements of the Clean Water Act, but they share this responsibility with the states. In Kentucky, the Division of Water works with the EPA to meet this responsibility.

The Clean Water Act is made up of many sections that address different issues related to protecting our water. In general, it requires that the waterbodies of the nation be drinkable, swimmable and fishable. Examples of waterbodies include streams, rivers, lakes, springs and wetlands, which are all protected under the Clean Water Act.

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The major water health problems were caused by waste released through pipes into waterways from industrial processes and sewage treatment plants (**point source pollution**). After several years of regulation of point sources, water health began to improve. However, there were still water pollution problems across the nation.

In the late 1980's, the US Environmental Protection Agency began to focus on the effects of runoff pollution (**nonpoint source pollution**) that was being carried into streams and lakes by water from storms running over the land. This pollution was preventing the streams and lakes from being drinkable, swimmable and fishable. Runoff pollution is discussed and dealt with in Section 319 of the Clean Water Act. The funding that is provided by the US Environmental Protection Agency to reduce runoff pollution is often called 319 funding.

The Clean Water Act identifies two types of pollution:

Point Source Pollution - pollution from regulated pipes and ditches

Runoff Pollution (Non-Point Source Pollution)– From a combination of sources

Requirements of the Clean Water Act

Legal Limits of Pollution (Water Quality Standards)

To support the drinkable, swimmable and fishable goals, the Clean Water Act requires states to set legal limits of pollution (**water quality standards**) in streams and lakes. These limits are used to protect and manage the streams and lakes, and to reduce or get rid of pollution from regulated pipes or ditches (point source pollution) and runoff pollution (nonpoint source pollution). In Kentucky, the legal limits of pollution (water quality standards) are set for a

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variety of measurements such as bacteria (***E. coli***), dissolved oxygen, metals, temperature and pH. These limits are part of the state regulations.

Ways We Use Streams and Lakes (Designated Uses)

As a part of the legal limits of pollution (water quality standards) in streams and lakes, states must identify uses (**designated uses**) for each body of water in their state. In Kentucky, the Division of Water has identified the possible uses of streams and lakes. They are listed here with the symbols (icons) that represent them:

Primary Contact Recreation (PCR) – swimming or other activities where your head goes under water and you are likely to swallow water, or your eyes, inside of nose or inside of mouth are likely to come in contact with the water

- If there are bacteria or other germs in the water, they can get inside your body through these areas and cause sickness
- Bacteria and other germs can also get inside your body through cuts and sores
- The higher the amount of bacteria in the water, the higher your chances of getting sick
- Harmful substances from rapid growths of blue-green algae in streams and lakes can cause skin rashes, breathing problems and other sickness

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Secondary Contact Recreation (SCR)– fishing, boating, wading or other activities where parts of your skin come in contact with the water, but your head doesn't go under the water

- If there are bacteria or other germs in the water and you get them on your skin, then touching your eyes, nose or mouth can move the bacteria and germs into your body and cause sickness
- Bacteria and other germs can also get inside your body through cuts and sores
- The higher the amount of bacteria in the water, the higher your chances of getting sick
- Harmful substances from rapid growths of blue-green algae in streams and lakes can cause skin rashes, breathing problems and other sickness

Domestic Water Supply (DWS) – drinking water for humans

- This is measured at the place where the drinking water treatment plant takes the water from the stream or lake
- The water must not have more pollution than can be cleaned to a level safe for humans to drink
- Harmful substances from rapid growths of blue-green algae in streams and lakes create unique problems for treating water for drinking.

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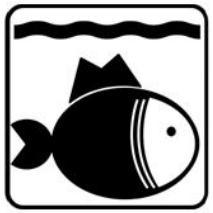
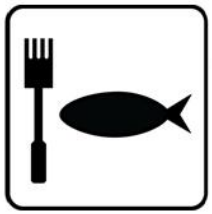


Aquatic Life (AL)– the healthy variety of animals that live in water

- This variety of animals depends on healthy water and healthy places to live (habitat) in the stream or lake
- **Warm water aquatic habitat (WAH)** is a type of habitat that supports a balanced community of aquatic organisms.



Fish Consumption (FC)– safety of eating fish

- Based on the amount of chemicals found in the flesh of the fish
- This is a goal of meeting the legal limits of pollution in streams and lakes (water quality standards) to protect human health
- The chemicals of most common concern are mercury (methyl) and polychlorinated biphenyls (PCBs), but tests are also performed for other metals and for pesticides
- Harmful substances from rapid growths of blue-green algae in streams and lakes can pollute fish flesh

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Outstanding State Resource Water (OSRW)
streams or lakes that have unique features that are worthy of legal protection

- The Division of Water identifies a stream or lake as an Outstanding State Resource Water (OSRW) if a group of animals living in the stream or lake are of a kind that has been found to be dying off or disappearing (federally endangered or threatened) in other areas but are still living in that particular stream or lake because of the high quality of that water.
- Any streams that have already been identified as Kentucky Wild Rivers, Exceptional Waters or Federal Wild and Scenic Rivers are also automatically considered for review to become an Outstanding State Resource Water.

The Kentucky regulations that set the legal limits of pollution (water quality standards) and identify possible uses (designated uses) for streams and lakes are found in Title 401 of the Kentucky Administrative Regulations Chapter 10 Sections 031 and 026 (401 KAR 10:031 and 401 KAR 10:026). These regulations can be found on the Kentucky Legislative Research Commission website.

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How We Evaluate the Health of Streams and Lakes (Assessment)

To find out if the streams and lakes in Kentucky are below the legal limits of pollution (water quality standards) and meeting the possible uses (designated uses) assigned to them, the Division of Water (DOW) collects several types of samples from the water and examines and tests them. The Division then combines all of the information collected and uses it to provide an evaluation (**assessment**) of the health of the stream or lake. With these health evaluations (assessments), the stream or lake receives one of the following ratings:

- **does not support** its use(s)
- **partially supports** its use(s)
- **fully supports** its use(s)
- its use(s) not evaluated - **white**

The table below gives examples of the different ratings and symbols (icons) that represent these uses. The table also includes the colors that represent the different ratings.

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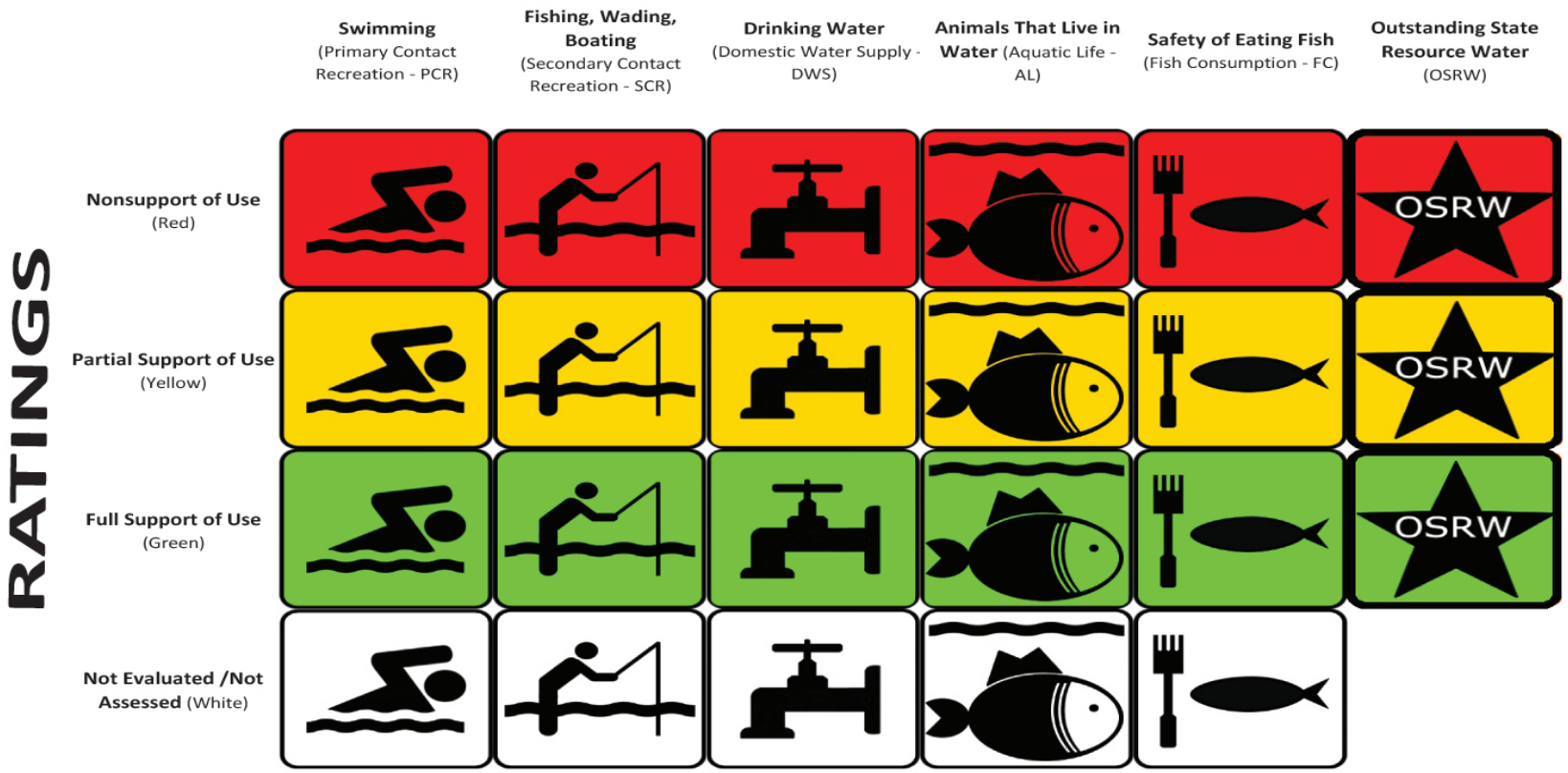
USES



The rating for a stream or lake can be further explained as follows:

- **Very Poor to Poor** if it does not support its use(s) **(red)**
- **Fair** if it partially supports its use(s) **(yellow)**
- **Good to excellent** if it fully supports its use(s) **(green)**

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The Division of Water has a website that provides the ratings and uses for all of the streams and lakes in the state that have been tested and evaluated. This website is called the Water Health Portal and can be found by [clicking here](#).

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Can I Swim There? (Swimming Advisories)

The Kentucky Division of Water and the Kentucky Division of Public Health Protection and Safety are responsible for sampling and evaluating streams and lakes to determine if they are safe for human contact. Those that are found to have high levels of bacteria can cause illness from recreational contact with the water. The ones that consistently have high levels of bacteria are identified as unsafe for swimming and/or other activities like boating and wading. Signs are placed around these streams and lakes to let the public know they are unsafe.

The bacteria come from human or other animal waste and are a sign of the presence of untreated, or poorly treated, sewage, poor farming practices, failure to pick up pet waste, etc. High amounts of bacteria and the other germs found in sewage and other waste create a higher chance of getting sick from contact with the water.

Any stream or lake is more likely to have high amounts of bacteria after heavy storms. The rain or melting snow from these storms can overwhelm sewage pipes causing untreated sewage to flow into streams and lakes. The runoff from those storms will also carry any waste on the land surface into the local streams and lakes. For this reason, it is recommended to avoid water activities in any stream or lake for at least three days after a storm that is heavy enough to cause runoff.

Streams and lakes are evaluated for two different types of recreational activity:

- Primary Contact Recreation (PCR) - swimming or other activities where your head goes under water and you are likely to swallow water, or your eyes, inside of nose or inside of mouth are likely to come in contact with the water
- Secondary Contact Recreation (SCR) - fishing, boating, wading or other activities where parts of your skin come in contact with the water, but your head doesn't go under the water

The current swimming advisories for Kentucky are available on the Division of Water's website on the "Swimming Advisories" webpage.

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Can I Eat the Fish? (Fish Consumption Advisories)

The Kentucky Division of Water, Kentucky Division of Public Health Protection and Safety and Kentucky Department for Fish and Wildlife Resources are responsible for working together to determine the safety of eating fish that are caught in the streams and lakes in the state. They jointly issue a safety of eating fish (fish consumption) advisory to the public for a stream or lake when fish flesh is found to contain chemicals above the amounts that have been determined to be safe for humans to eat. The chemicals of most common concern are mercury (methyl) and polychlorinated biphenyls (PCBs), but tests are also performed for other metals and for pesticides.

An advisory cautions people about potential health problems that may result from eating fish caught from a particular area. An advisory does not mean fish can't be eaten. It is intended to provide information to guide people in making choices that reduce health risks. The advisory provides information on how often fish may be safely eaten.

Risks from eating fish from an advisory area can be reduced by the following:

- fillet the fish, remove the skin and trim all fat
- do not eat fish eggs
- broil, grill or bake the fillets instead of frying or microwaving
- do not eat, or reuse, juices or fats that cook out of the fish

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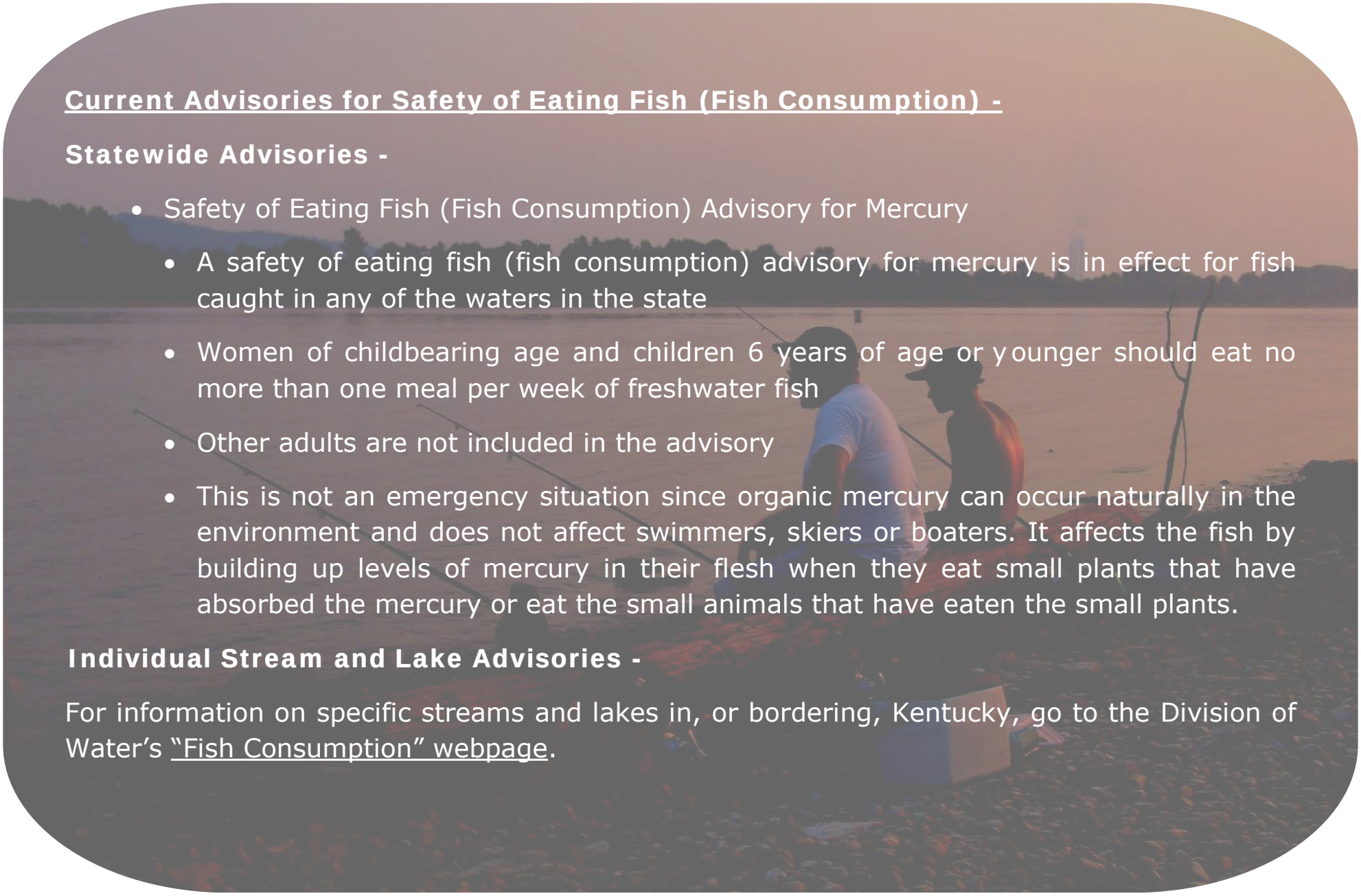

Current Advisories for Safety of Eating Fish (Fish Consumption) -

Statewide Advisories -

- Safety of Eating Fish (Fish Consumption) Advisory for Mercury
  - A safety of eating fish (fish consumption) advisory for mercury is in effect for fish caught in any of the waters in the state
  - Women of childbearing age and children 6 years of age or younger should eat no more than one meal per week of freshwater fish
  - Other adults are not included in the advisory
  - This is not an emergency situation since organic mercury can occur naturally in the environment and does not affect swimmers, skiers or boaters. It affects the fish by building up levels of mercury in their flesh when they eat small plants that have absorbed the mercury or eat the small animals that have eaten the small plants.

Individual Stream and Lake Advisories -

For information on specific streams and lakes in, or bordering, Kentucky, go to the Division of Water's "Fish Consumption" webpage.

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What Is that Scum on the Water? (Harmful Algal Bloom Advisory)

Harmful algae growing in lake

Fertilizers are carried by runoff into lakes and streams from lawns, sewage, farms, etc. This causes several different types of algae to grow rapidly in the water. The common green algae are not harmful to humans or animals that come in contact with the water. When they grow rapidly, they can look like underwater moss, stringy mats or floating scum. Blue-green algae, on the other hand, can be harmful. They can cause skin rashes, breathing problems and other sickness in humans and animals. When they grow rapidly, they can make the water look like shiny bright-green paint, but the color of the algae can also be red or brown. The rapid growth of blue-green algae that release poisons in the water is called a Harmful Algal Bloom (HAB).

In addition to the fertilizers in the water, there are other conditions that can cause a rapid growth of blue-green algae (harmful algal bloom). These include slow moving water, low water levels, warmer temperatures and lots of sunlight. This means rapid growths of blue-green algae (harmful algal blooms) are more likely to happen between May and October.

For information on rapid growth of blue-green algae (harmful algal bloom) warnings in Kentucky, go to the Division of Water's "Harmful Algal Blooms" webpage.

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Required Reports for Stream and Lake Health

Part of the Clean Water Act (**Section 305(b)**) requires states to submit a report to Congress every two years on the health of the waters that have been evaluated (assessed) by the state. It provides a list of all of the streams and lakes in the state that have been tested and evaluated (assessed) and describes whether or not they are supporting their identified uses (designated uses).

Another part of the Clean Water Act (**Section 303(d)**) requires that states also submit to Congress every two years a report of the streams and lakes that are found to be in poor health (impaired). This is a list of the group of streams and lakes from the Section 305(b) report that are not supporting or partially supporting identified uses (**impaired**).

These two reports, the 305(b) and the 303(d), are sent by the Division of Water to Congress through the U.S. Environmental Protection Agency as one report called the **Integrated Report**. The Integrated Report has Volume I and Volume II. Volume I is the 305(b) report and Volume II is the 303(d) report. The reports are available on the Kentucky Division of Water's Integrated Report website.

It is important to know that the Integrated Report only provides information for the waters in the state that have been tested and evaluated. Not all of the waters in the state have been tested.

For an easy summary of this report, view our interactive webpage here.

Pollution Studies and Solutions

The streams and lakes on the 303(d) list will each require a study that identifies the types and amounts of pollutants in the water and gives guidelines for how they should be reduced. These studies are called **Total Maximum Daily Loads (TMDLs)** and they determine the amount of a certain type of pollutant a stream or lake can receive and still meet its identified uses (designated uses).

A Total Maximum Daily Load (TMDL) is often called a pollution diet. Just as eating smaller portions of food controls the amount of weight in your body, balancing or reducing the portions of chemicals and waste that get into a stream or lake from different sources controls the overall amount of pollution in it. The Division of Water performs strategic

sampling to find out the amount of chemicals and waste that are going into the stream or lake, and then develops the pollution diet that describes how much of each chemical or waste must be reduced to bring the stream or lake back below the legal limits that allow it to be healthy.

The results of the studies are included in a Total Maximum Daily Load (TMDL) report that describes the current condition of the stream or lake and the amount of pollutants that must be removed in order for it to support its identified use(s). The Total Maximum Daily Load (TMDL) report is intended to help government officials, agencies, watershed groups and citizens make decisions and take action to improve water health. The TMDL reports for Kentucky can be found on the Division of Water's TMDL website.

Total Maximum Daily Loads (TMDLs) divide up the amount of pollutants that are allowed to be released in the watershed among the users of the land. These different land users can include businesses, factories, sewage treatment plants, towns, farms and homeowners. Some land users are required to have a permit to release polluted water in the watershed (point sources of pollution). All other user activities that cause pollution can runoff into the stream during storms; these are runoff pollution sources (nonpoint sources). The calculation of the maximum amount of pollutants that can be released from point sources to a stream or lake so it will still meet its uses is called the Wasteload Allocation. The calculation of the maximum amount of runoff pollutants (nonpoint source pollution) that can be released to a stream or lake so it will still meet its uses is called the Load Allocation.

Before the maximum amounts of point source pollutants (Wasteload Allocation) and runoff pollutants (Load Allocation) are added together and finalized, a margin of safety is added to account for uncertainty. To summarize, the Total Maximum Daily Load (TMDL) equals the Margin of Safety, the Wasteload Allocation andthe Load Allocation. These pieces of the Total Maximum Daily Load (TMDL)are shown in the charts below.

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Pollution Diet or Total Maximum Daily Load (TMDL)

TMDL =

WASTELOAD

Calculation of maximum amount of pollutants that can be released from a regulated pipe or ditch (point source pollution)

+

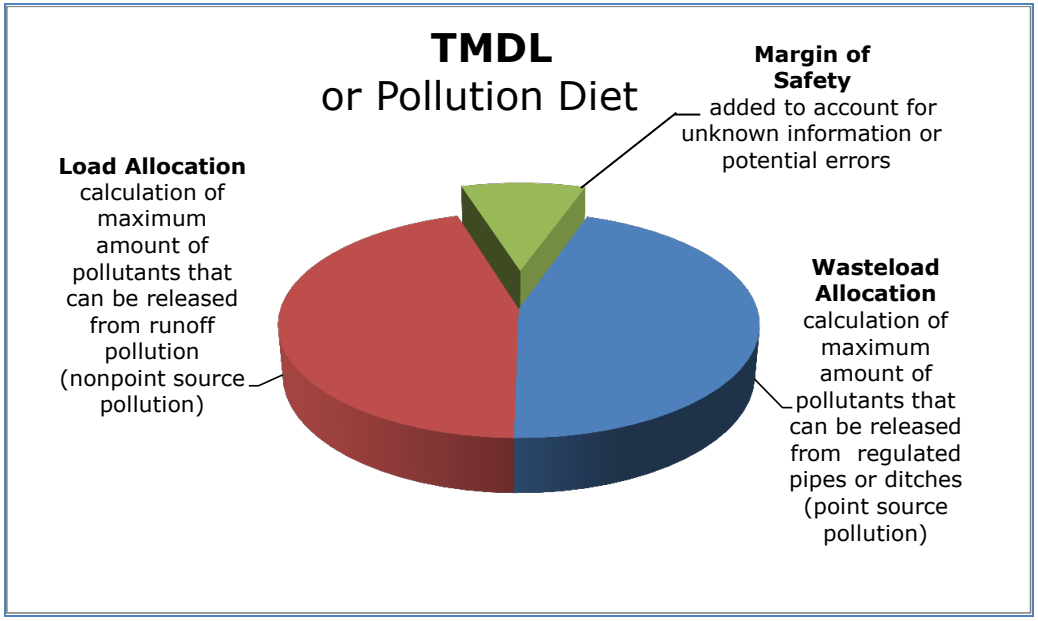
LOAD

Calculation of maximum amount of pollutants that can be released from runoff pollution (nonpoint source pollution)

+

SAFETY

Accounts for unknown information or errors



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Protecting Streams from Additional Damage (Antidegradation)

In order to meet the legal limits of pollution (water quality standards) that protect and support the identified uses (designated uses) of streams and lakes, the Clean Water Act requires protection of basic levels of health from unnecessary pollution for all streams or lakes. In addition, streams or lakes with higher levels of health are required to receive extra protection from activities that have the potential to damage that health.

These protections are intended to 1) prevent any additional pollution damage and 2) keep stream and lake health at the same level and supporting the same identified uses (designated uses) from the time these Clean Water Act requirements went into effect on November 28, 1975. The goal of no additional pollution damage is referred to as **antidegradation**. To support this goal, streams and lakes are evaluated and identified for special uses based on unique characteristics they have.

Protecting What's Special

With over 90,000 miles of streams and lakes in Kentucky that run through mountains, hills, Bluegrass, coal fields and many other land features, it isn't surprising that many of these have one or more unique characteristics that deserve extra protection. The Division of Water has regulations that define several categories that are based on these characteristics. Because many of these streams and lakes have more than one unique characteristic, they may fit into more than one of the categories of **Special Use Waters** that are described in this section. Maps showing the streams and lakes can be found on the Division of Water's "Special Use Waters" webpage.

Special Use Waters

- Reference Reach Waters – streams and lakes throughout the state that are the most unchanged from their natural conditions
  - used as best examples of how least altered streams in different areas of the state are supposed to look and function

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- used when working to fix streams that have been damaged, because they can be used as a comparison for how the streams are meant to be
- it is important to know that very few, if any, of our streams are in an untouched natural condition - The Reference Reach streams represent the least changed streams in each region

- **Cold Water Aquatic Habitats (CAH)** – streams that will support, on a year-round basis, native animals that can't live without cooler water temperatures, and/or provide the cooler temperatures and surroundings needed for trout to reproduce

- Exceptional Waters (EW) – streams or lakes that have the high quality of water that is necessary for fish, shellfish and wildlife to reproduce and supports recreation in and on the water
  - this category includes Reference Reach waters, Kentucky Wild Rivers, some Outstanding State Resource Waters and some waters that have a rating of "excellent" for fish or bugs (macroinvertebrates)

- Kentucky Wild Rivers – parts of nine rivers in the state that have extraordinary beauty and clean water.
  - includes all visible land for at least 2000 feet on either side of the river
  - any change in the way the land is used within the Wild River boundary requires a permit, and cutting all trees or strip mining are not allowed

- Outstanding State Resource Waters (OSRW) – streams or lakes that have unique features that are worthy of legal protection

  - the Division of Water identifies a stream as an Outstanding State Resource Water (OSRW) if a group of animals living in the stream or lake are of a kind that has been found to be dying off and they are disappearing, or beginning to disappear, from the places they normally live (federally threatened or endangered)

  - any streams that have already been identified as Kentucky Wild Rivers, Exceptional Waters or Federal Wild and Scenic Rivers are also automatically considered for review to become an Outstanding State Resource Water

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- Outstanding National Resource Waters (ONRW) – streams or lakes that meet the requirements for an Outstanding State Resource Water and also have natural or recreational importance on a national level

- Federal Wild and Scenic Rivers Act
  - Federal Wild Rivers – rivers, or sections of rivers, that don't have dams, don't have developed watersheds or shorelines, don't have polluted waters, and can only be reached by trail.
  - Federal Scenic Rivers – rivers, or sections of rivers, that meet all of the requirements of a Federal Wild River, except they can be reached by roads in some places.
  - Recreational Rivers – rivers, or sections of rivers, that can be reached by road or railroad, that may have some development along their shorelines, and that may have been dammed or re-routed in the past.

For more information contact your local coordinator:
water.ky.gov/watershed/Pages/Basins.aspx

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